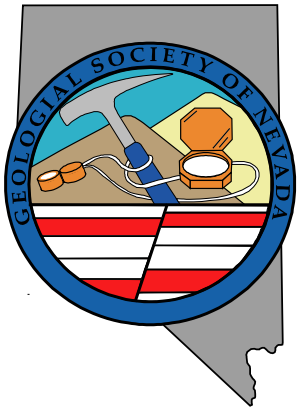
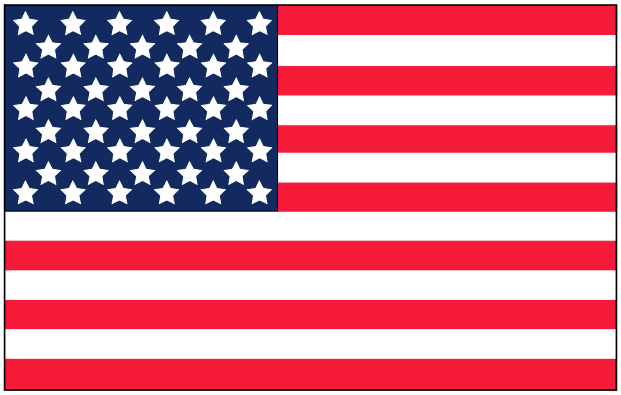
Geological Society of Nevada

SOUTHERN NEVADA CHAPTER

Newsletter **September, 2001**





The Geology, Structure and Economic Geology of the Mishibishu Lake, Ontario Area

DATE: **Thursday, September 27, 2001**

SPEAKER: **Mr. R. Paul Bowen**

LOCATION: **Room 102 Lilly Fong Geoscience Building**

TIME: **5:30 p.m. Social hour**
6:30 p.m. Presentation

Announcements:

The Southern Chapter of GSN now has a website!
http://www.unlv.edu/Colleges/Sciences/Geoscience/GSN/gsnsc.htm
Bookmark the page to stay on top of the Southern Chapter events.

The Geology, Structure and Economic Geology of the Mishibishu Lake, Ontario Area

Mr. R. Paul Bowen - R.P. Bowen Engineering Inc.

Abstract (GSN- Las Vegas meeting on September 27, 2001)

The Mishibishu Lake mapping program was conducted during the summer field seasons of 1985, 1986 and 1987 under the auspices of the Ontario Geological Survey. Approximately 1,410 square kilometers were mapped. The Mishibishu Lake Greenstone Belt is comprised of a series of metavolcanic flows and interflow clastic and chemical metasedimentary units. The metavolcanic units range from komatiitic basalts through tholeiitic and calc-alkalic basalt to rhyolite flows, lapilli and ash flow tuffs. Some of the thicker mafic metavolcanic sequence exhibit a gabbroic texture and may be in part intrusive in origin probably as synvolcanic sills and dikes. The clastic metasedimentary units range from mudstone to conglomerates. The chemical metasedimentary units are generally interbedded chert and/or jasper and magnetite. Some minor sulfide and carbonate units were mapped and may have formed due to hydrothermal alteration. Felsic plutonic rocks occur as batholithic complexes surrounding the greenstone belt itself and as late stage homogeneous stocks and plugs within the greenstone belt.

Extensive lithogeochemical sampling and analytical work served to assist in sorting out the stratigraphy and classify the plutonic units. This work was deemed necessary due to the fact that over half the bedrock geology was mantled by Quaternary glacial and lakebed deposits that exceeded 20 meters in places. A great deal of reliance was made of high intensity aeromagnetic maps provided by the Ontario Geological Survey. The plutonic complexes and stocks differ from one another texturally, petrographically and chemically. Migmatitic transition zones separate the plutonic and greenstone complexes. Several felsic to intermediate high level intrusive bodies were mapped as well. Late Archean and early to middle Proterozoic diabase dike swarms cut all rock types and each different age has a preferred orientation. Metamorphism if greenstone rank reaching amphibolite rank near the margins with plutonic bodies.

The intrusive supracrustal rocks deformed the greenstone belt into a steeply dipping overturned synformal structure. Some refolding was associated with late stage felsic intrusions. Four regional deformation zones were mapped each consisting of several discontinuous brittle-ductile and ductile shear zones which crosscut all rock types, excluding diabase dikes. Chevron folds, steeply plunging lineations, crenulations and compositional banding are some of the deformational features encountered.

Gold mineralization associated with pyrite, arsenopyrite and lesser chalcopyrite, sphalerite and galena, is found in shear zone hosted quartz vein systems within zones of regional

deformation. Coincident hydrothermal alteration is generally zoned about these auriferous quartz vein systems. An outer haleo of chlorite-calcite alteration progresses inward through an ankerite-chlorite zone with local silicification, into a proximal zone of sericitization±ankerite±quartz±green mica. The strongest degree of hydrothermal alteration is spacially related to zones of strong to intense deformation.

Two small gold mines came into production after the mapping program. The Discovery Occurrence became a mine for Westfield Minerals Ltd. And the Eagle River-No Name Lake Occurrence became a producer for Noranda Mines.

R. Paul Bowen

Paul received a Bachelor of Science in Geological Engineering and a Bachelor of Science in Engineering Administration from Michigan Technological University, Houghton, Michigan and a Diploma in Geological Science and a Master of Science (Applied) in Minerals Exploration from McGill University, Montreal, Quebec. Paul spent eight years with the Ontario Geological Survey at different periods of time in his career. He also worked for Tenneco Mining Inc., Rosario Resources Corporation, Newmont Mining and the U.S. Geological Survey.

In 1985 Paul started his own consulting business R.P. Bowen Engineering Inc. His career has taken him through most of the western United States and a number of foreign countries. Most of his career has been devoted to the search for precious and base metals interspersed with occasional industrial minerals projects.

Paul has also taught environmental geology at Wayne State University in Detroit, Michigan and Environmental Science at the Community College of Southern Nevada, Las Vegas. Presently he is involved in several precious metal grass roots exploration programs and is teaching Environmental Science and Environmental Ethics at the University of Phoenix, Las Vegas.

Announcements

Look! Its a *NEW* GSN web site!
http://www.gsnv.org
http://www.unlv.edu/Colleges/Sciences/Geoscience/GSN/gsnsc.htm

If you know of anyone that would like to become a member of if you need to renew your membership in the Geological Society of Nevada, a membership application is attached or can be accessed online.

GEOLOGICAL SOCIETY OF NEVADA
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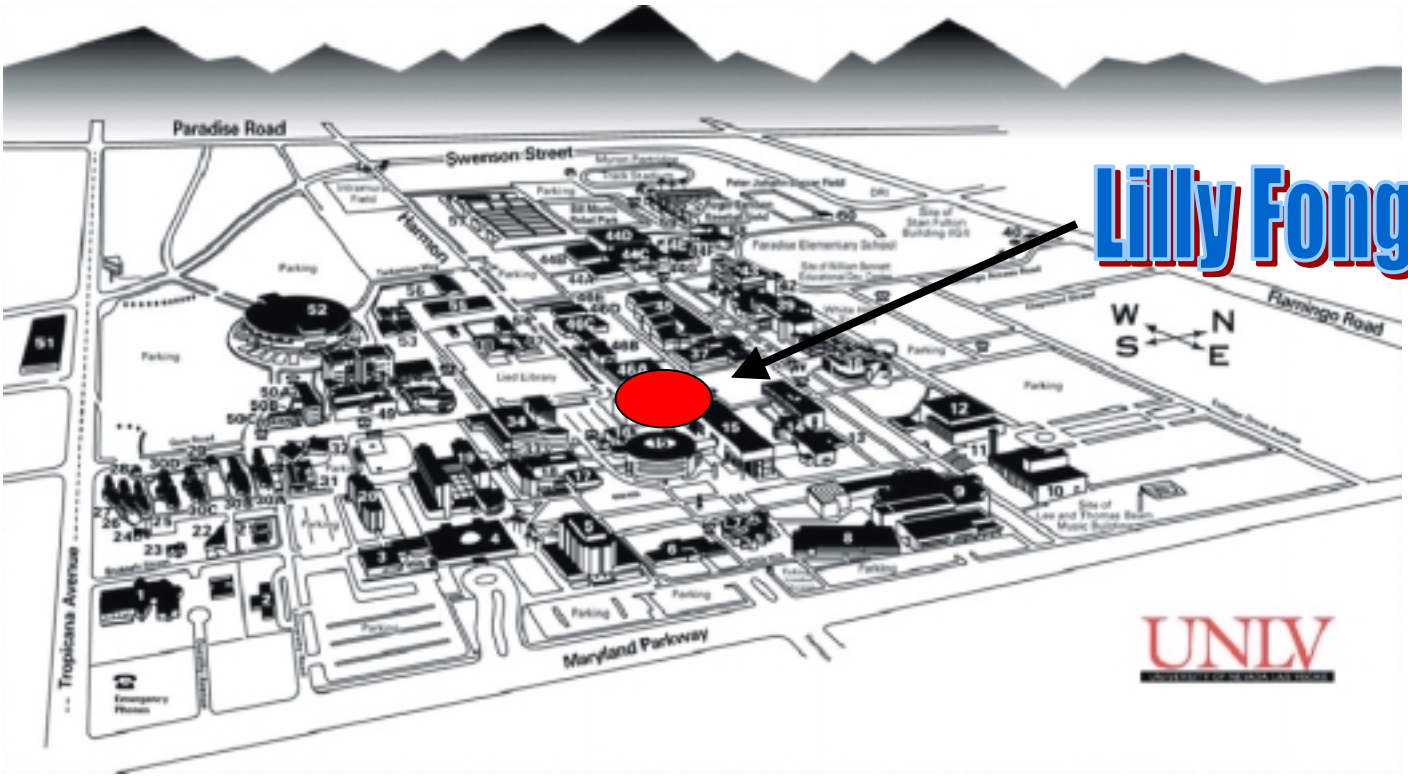

Publication and mailing of this newsletter has been contributed by The UNLV Department of Geoscience.

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